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Effective on 12/08/2004. Fees are set by the Consolidated Appropriations Act, 2005 (H.R. 4818).		Complete if Known	
<div style="border: 2px solid black; border-radius: 50%; padding: 10px; display: inline-block;"> FEE TRANSMITTAL for FY 2005 APR 12 2006 U.S. PATENT & TRADEMARK OFFICE </div>		Application Number	10/080,754
		Filing Date	February 22, 2002
		First Named Inventor	Gerald W. Fly et al.
		Examiner Name	Gregg Cantelmo
		Art Unit	1745
Applicant claims small entity status. See 37 CFR 1.27		Attorney Docket No.	8540G-000058/CPA (H-205702)
TOTAL AMOUNT OF PAYMENT (\$) 500.00			

METHOD OF PAYMENT (check all that apply)

- ☐ Check
 ☐ Credit Card
 ☐ Money Order
 ☐ None
 ☐ Other (please identify) : _____
- ☒ Deposit Account
 Deposit Account Number: 07-0960
 Deposit Account Name: General Motors Corporation
- For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)
- ☒ Charge fee(s) indicated below
 ☐ Charge fee(s) indicated below, except for the filing fee
- ☒ Charge any additional fee(s) or underpayments of fee(s)
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- Under 37 CFR 1.16 and 1.17

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FEE CALCULATION

1. BASIC FILING, SEARCH, AND EXAMINATION FEES

Application Type	FILING FEES		SEARCH FEES		EXAMINATION FEES		Fees Paid (\$)
	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	
Utility	300	150	500	250	200	100	_____
Design	200	100	100	50	130	65	_____
Plant	200	100	300	150	160	80	_____
Reissue	300	150	500	250	600	300	_____
Provisional	200	100	0	0	0	0	_____

2. EXCESS CLAIM FEES

Fee Description	Fee (\$)	Small Entity Fee (\$)
Each claim over 20 (including Reissues)	50	25
Each independent claim over 3 (including Reissues)	200	100
Multiple dependent claims	360	180
Total Claims		
_____ -20 or HP= 0 x _____ = 0		
HP = highest number of total claims paid for, if greater than 20.		
Indep. Claims		
_____ - 3 or HP= 0 x _____ = 0		
HP = highest number of independent claims paid for, if greater than 3.		

3. APPLICATION SIZE FEE

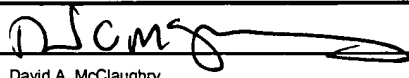
If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof	Fee (\$)	Fee Paid (\$)
_____	_____	_____ / 50 = 0 (round up to a whole number) x	_____	_____

4. OTHER FEE(S)

	Fees Paid (\$)
Non-English Specification, \$130 fee (no small entity discount)	_____
Other (e.g., late filing surcharge) : Fee for Filing Appeal Brief	500

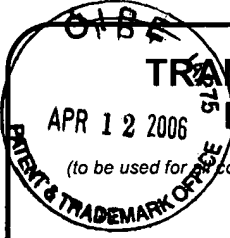
SUBMITTED BY

Signature		Registration No. (Attorney/Agent)	37,885	Telephone	(248) 641-1600
Name (Print/Type)	David A. McClaughry		Date	April 12, 2006	


This collection of information is required by 37 CFR 1.136. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

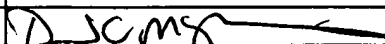
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	Application Number	10/080,754	
	Filing Date	February 22, 2002	
	First Named Inventor	Gerald W. Fly et al.	
	Art Unit	1745	
	Examiner Name	Gregg Cantelmo	
Total Number of Pages in This Submission		Attorney Docket Number	8540G-000058/CPA (H-205702)

ENCLOSURES (check all that apply)				
<input checked="" type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Fee Attached <input type="checkbox"/> Amendment / Reply <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Response to Missing Parts/Incomplete Application <input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s) _____	<input type="checkbox"/> After Allowance Communication to Technology Center (TC) <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input checked="" type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input checked="" type="checkbox"/> Other Enclosure(s) (please identify below): <p style="text-align: center;">return receipt postcard</p>		
<table border="1" style="width: 100%;"> <tr> <td style="width: 20%;">Remarks</td> <td>The Commissioner is hereby authorized to charge any additional fees that may be required under 37 CFR 1.16 or 1.17 to Deposit Account No. 07-0960. A duplicate copy of this sheet is enclosed.</td> </tr> </table>			Remarks	The Commissioner is hereby authorized to charge any additional fees that may be required under 37 CFR 1.16 or 1.17 to Deposit Account No. 07-0960. A duplicate copy of this sheet is enclosed.
Remarks	The Commissioner is hereby authorized to charge any additional fees that may be required under 37 CFR 1.16 or 1.17 to Deposit Account No. 07-0960. A duplicate copy of this sheet is enclosed.			

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT			
Firm or Individual name	Harness, Dickey & Pierce, P.L.C.	Attorney Name	David A. McLaughry
		Reg. No.	37,885
Signature			
Date	April 12, 2006		

CERTIFICATE OF TRANSMISSION/MAILING			
I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below.			
Typed or printed name	David A. McLaughry	Express Mail Label No.	EV 853 856 043 US (4/12/2006)
Signature		Date	April 12, 2006

This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

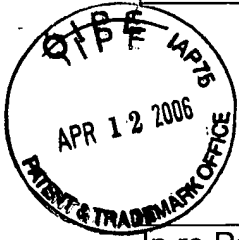
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Express Mail Label No. EV 853 856 043 US (4/12/2006) Dated: 04-12-2006



Docket No.: 8540G-000058/CPA
(Client Ref. H-205702)
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Gerald W. Fly et al.

Application No.: 10/080,754

Filed: February 22, 2002

Art Unit: 1745

For: FUEL CELL WITH VARIABLE POROSITY
GAS DISTRIBUTION LAYERS

Examiner: Gregg Cantelmo

APPEAL BRIEF

MS Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

As required under § 41.37, this brief is filed within one month of the Notice of Panel Decision From Pre-Appeal Brief Review mailed on March 21, 2006, and is in furtherance of said Notice of Appeal.

The fees required under § 41.20(b)(2) are dealt with in the accompanying TRANSMITTAL OF APPEAL BRIEF.

This brief contains items under the following headings as required by 37 C.F.R. § 41.37 and M.P.E.P. § 1206:

- | | |
|------|-----------------------------------|
| I. | Real Party In Interest |
| II | Related Appeals and Interferences |
| III. | Status of Claims |
| IV. | Status of Amendments |
| V. | Summary of Claimed Subject Matter |

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VI.	Grounds of Rejection to be Reviewed on Appeal
VII.	Argument
VIII.	Claims
IX.	Evidence
X.	Related Proceedings
Appendix A	Claims
Appendix B	Evidence
Appendix C	Related Proceedings

I. REAL PARTY IN INTEREST

The real party in interest for this appeal is:

General Motors Corporation

II. RELATED APPEALS, INTERFERENCES, AND JUDICIAL PROCEEDINGS

There are no other appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

III. STATUS OF CLAIMS

A. Total Number of Claims in Application

There are 23 claims pending in this application.

B. Current Status of Claims

1. Claims canceled: 5, 19
2. Claims withdrawn from consideration but not canceled: 0
3. Claims pending: 1-4, 6-18, 20-25
4. Claims allowed: 22-25
5. Claims rejected: 1-4, 9, 10, 13-18 and 20

C. Claims On Appeal

The claims on appeal are claims 1-4, 9, 10, 13-18 and 20. Applicants note that the Examiner has indicated that claim 20 is rejected, but has not stated any grounds for the rejection. However, on page 6 of the Office Action mailed January 13, 2005, the Examiner indicates that claim 20 is objected to rather than rejected. Applicants assume that claim 20 is merely objected to rather than rejected, but have indicated claim 20 as rejected above in order to correspond with the correspondence from the Patent Office.

IV. STATUS OF AMENDMENTS

Applicants did not file an Amendment After Final Rejection. Accordingly, all amendments have been entered in this application.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The claimed subject matter is directed to a fuel cell including a membrane electrode assembly (items 42, 442, 542, 642, 742, 842; Figs. 3-5, 8, 9, 13-17; [0042], [0044], [0046], [0048], [0049], [0051], [0054], [0056], [0057], [0059], [0060]-[0062], [0064]-[0070], [0073], [0076]) having a membrane (item 64; Figs. 4, 8, 9; [0044], [0075]), a first catalytic layer

(item 68; Figs. 4, 8, 9; [0044]) on a first face of said membrane and a second catalytic layer (item 70; Figs. 4, 8, 9; [0044]) on a second face of said membrane. The fuel cell includes a first bipolar plate assembly (items 44, 44', 144, 244, 344; Figs. 3, 5, 7, 8-12; [0042], [0051], [0054], [0056]-[0058]) adjacent the first catalytic layer and in electrical contact therewith. The first bipolar plate assembly includes: a first gas distribution layer (items 46, 46', 46a, 146, 246, 346, 446, 646, 846; Figs. 3, 5-13, 15, 17; [0042], [0051]-[0062], [0067], [0069]) having a plurality of porous, reactant gas flow channels extending transversely through the first gas distribution layer in a generally parallel orientation. A first face of said first gas distribution layer confronts the first catalytic layer such that the plurality of porous, reactant gas flow channels are in fluid communication with the first catalytic layer. A first non-porous impermeable, conductive separator plate (items 48, 48', 348, 448, 648; Figs. 5-13, 15; [0042], [0043], [0051], [0058], [0060]-[0063], [0067], [0070]) is secured to a second face of the first gas distribution layer. The fuel cell further includes a second bipolar plate assembly adjacent the second catalytic layer and in electrical contact therewith. The second bipolar plate assembly (items 44, 44', 144, 244, 344; Figs. 3, 5, 7, 8-12; [0042], [0051], [0054], [0056]-[0058]) includes: a second gas distribution layer (items 46, 46', 46c, 146, 246, 346, 446, 646, 846; Figs. 3, 5-13, 15, 17; [0042], [0051]-[0062], [0067], [0069]) having a plurality of porous, reactant gas flow channels extending transversely through the second gas distribution layer in a generally parallel orientation. A first face of said second gas distribution layer confronts the second catalytic layer such that the plurality of porous, reactant gas flow channels are in fluid communication with the second catalytic layer. A second non-porous impermeable, conductive separator plate (items 48, 48', 348, 448, 648;

Figs. 5-13, 15; [0042], [0043], [0051], [0058], [0060]-[0063], [0067], [0070]) is secured to a second face of said second gas distribution layer.

VI. GROUNDS OF OBJECTION TO BE REVIEWED ON APPEAL

1. Whether Cipollini (U.S. Pat. No. 6,258,476) anticipates the limitations of claims 1, 3, 13, 15, and 17 under 35 U.S.C. §102(e).

2. Whether Cipollini (U.S. Pat. No. 6,258,476) establishes a prima facie case of obviousness under 35 U.S.C. § 103(a), with respect to claims 2, 4, 9, 10, 14, 16, and 18.

VII. ARGUMENT

A. CIPOLLINI (U.S. PAT. NO. 6,258,476) FAILS TO ANTICIPATE THE INVENTION OF CLAIMS 1, 3, 13, 15, and 17

Claim 1 of the subject application generally includes a fuel cell having a membrane electrode assembly having first and second catalytic layers on first and second faces. A first bipolar assembly is adjacent the first catalytic layer and includes a first bipolar plate assembly including a first gas distribution layer and a first non-porous impermeable, conductive separator plate. A second bipolar assembly is adjacent the second catalytic layer and includes a second bipolar plate assembly including a second gas distribution layer and a second non-porous impermeable, conductive separator plate.

As noted above, claim 1 specifically recites first and second “non-porous impermeable, conductive separator plate[s].” These features do not appear in Cipollini. The Examiner asserts that Cipollini discloses a non-porous impermeable separator plate.

Specifically, the Examiner notes that “[t]he presence of water in ‘transfer member’ or bipolar plate assembly (4) prevents cathode reactant gas from migrating from the gas passages through the transfer member.” (citing Cipollini col. 5, lines 51-54). The Examiner concludes that “the upper layer of plate 4 is impermeable to cathode reactant gas.” However, the Examiner admits on page 6 of the Office Action mailed January 13, 2005 that the plate in Cipollini is porous. The Examiner argues that although the plate structure has fine pores, in operation the presence of water in the pores prevents reactant gases from migrating therethrough, rendering the plate impermeable to gases. Applicants respectfully submit that these arguments are inappropriate, as they ignore the positively recited structure of claim 1, namely a non-porous impermeable conductive separator plate.

First, Applicants note that Cipollini fails to disclose both a second bipolar plate assembly and a second separator plate. Specifically, The Examiner considers product water transfer member (4) of Cipollini to be both the second separator plate and second bipolar plate assembly required by claim 1. As such, Applicants submit that Cipollini fails to disclose the second separator plate of claim 1.

Further, as noted in claim 1, the first and second separator plates of the present invention are non-porous. The entire product water transfer member (4) in Cipollini, considered to include the second separator plate by the Examiner, is porous. This is conceded by the Examiner as noted above. However, the Examiner notes that the plate is operationally non-porous through the introduction of water to the pores. Regardless of whether water is able to fill the pores or not, the structure of product water transfer member (4) has pores and is therefore porous. Applicants have attempted to clarify that the

separator plate of the present invention does not allow water to pass therethrough by adding language specifying that the plate is impermeable.

Clearly, an impermeable separator plate is not disclosed by Cipollini, which discloses a separator plate that is at least permeable to water. The Examiner relies on the fact that the separator plate in Cipollini is impermeable to gases when the pores of the plate are filled with water. A position that is contrary to the ordinary meaning of the term impermeable. Common definitions for the term "impermeable" include "impossible to permeate," which means impossible to be "penetrated, especially by liquids or gases." *The American Heritage College Dictionary, 3rd Ed.*, pp. 681, 1018 (1997). Applicants submit that a separator plate is non-porous and impermeable. However, as discussed above, the plate (or water transfer member) in Cipollini is both porous and permeable. Limitations may be appropriate where there is limited impermeability, such as in Cipollini where the plate is impermeable only to gases when pores are filled with water. This may be required for cases of limited permeability because the common usage of the term, as evidenced by the definitions above, would render the plate impermeable to liquids as well. As such, Applicants believe that the definitions for "impermeable" provided above clearly include impermeability to water. The structure of Cipollini certainly does not include this feature.

Cipollini specifically requires permeability of product water transfer member (4) for the transfer of water as well as for preventing passage of cathode reactant gas therethrough. Cipollini states that "side 12 of the product water transfer member 4 opposite to the ribs 6 forms a wall of the water coolant channel 15 through which coolant water flows." (col. 5, lines 20-23). If product water transfer member (4) in Cipollini were

impermeable, as commonly defined and as required by claim 1, water would not be able to enter the pores therein as required. Therefore, the interpretation of Cipollini suggested by the Examiner would render Cipollini inoperable.

As such, Applicants assert that the structure recited in claim 1 of the present invention has not been disclosed by Cipollini. Claims 2-4, 9, 10, 13-18 and 20 depend from claim 1 and should be in condition for allowance for the reasons set forth regarding claim 1. Therefore, Applicants respectfully request reconsideration and withdrawal of the rejections of claims 1-4, 9, 10, 13-18 and 20.

B. CIPOLLINI (U.S. PAT. NO. 6,258,476) DOES NOT RENDER OBVIOUS THE INVENTION OF CLAIMS 2, 4, 9, 10, 14, 16, and 18

At the outset, Applicants note that claims 2, 4, 9, 10, 14, 16, and 18 depend from claim 1 and should be in condition for allowance for the reasons set forth above regarding claim 1. Any obviousness rejection of the present claims is inappropriate, as Cipollini teaches away from the invention of claim 1 and the remainder of the rejected claims each depend from claim 1.

Specifically, Cipollini teaches away from the non-porous structure and general impermeability of the separator plate of the present invention. It is established that where references, instead of suggesting the invention, seek or warn to avoid suggestion, such references diverge from and teach away from the invention at hand and it is error to find obviousness based on such references. In re Fine, 837 F.2d 1071, 1074, 5 USPQ 1596, 1599 (Fed. Cir. 1988)(citing W.L. Gore & Assocs. v. Garlock, Inc., 721 F.2d 1540, 1550, 220 USPQ2d 303, 311 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984)). As noted above, the Examiner has conceded the plate of Cipollini is porous, but argues that

although the plate structure has fine pores, in operation the presence of water in the pores prevents reactant gases from migrating therethrough, rendering the plate impermeable to gases. Regardless of whether the pores in the Cipollini plate are filled with water or not, the plate is still porous, and therefore permeable as well, as evidenced by water filling the pores. Therefore, Cipollini teaches away from the structure of the separator plate of claim 1. As such, Cipollini cannot be viewed as rendering the invention of claim 1 obvious.

VIII. CLAIMS

A copy of the claims involved in the present appeal is attached hereto as Appendix A. As indicated above, the claims in Appendix A were not amended after the Final Rejection and any previous amendments have been entered.

IX. EVIDENCE

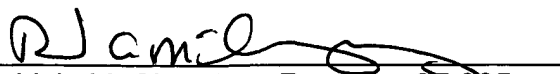
No evidence pursuant to §§ 1.130, 1.131, or 1.132 or entered by or relied upon by the examiner is being submitted. An attachment is provided at Appendix B indicating such.

X. RELATED PROCEEDINGS

No related proceedings are referenced in II. above, or copies of decisions in related proceedings are not provided. An attachment is provided at Appendix C indicating such.

Dated: 4/12/06

Respectfully submitted,

By 
David A. McClaughry, Reg. No. 37,885
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APPENDIX A

Claims Involved in the Appeal of Application Serial No. 10/080,754

1. A fuel cell comprising:

a membrane electrode assembly having a membrane, a first catalytic layer on a first face of said membrane and a second catalytic layer on a second face of said membrane;

a first bipolar plate assembly adjacent said first catalytic layer and in electrical contact therewith, said first bipolar plate assembly including:

a first gas distribution layer having a plurality of porous, reactant gas flow channels extending transversely through said first gas distribution layer in a generally parallel orientation, a first face of said first gas distribution layer confronting said first catalytic layer such that said plurality of porous, reactant gas flow channels are in fluid communication with said first catalytic layer; and

a first non-porous impermeable, conductive separator plate secured to a second face of said first gas distribution layer;

a second bipolar plate assembly adjacent said second catalytic layer and in electrical contact therewith, said second bipolar plate assembly including:

a second gas distribution layer having a plurality of porous, reactant gas flow channels extending transversely through said second gas distribution layer in a generally parallel orientation, a first face of said second gas distribution layer confronting said second catalytic layer such that said plurality of porous, reactant gas flow channels are in

fluid communication with said second catalytic layer; and

a second non-porous impermeable, conductive separator plate secured to a second face of said second gas distribution layer.

2. The fuel cell of claim 1 wherein each of said plurality of porous, reactant gas flow channels has a porous media having an average pore size no greater than 0.25 mm and a void fraction of no less than 85%.

3. The fuel cell of claim 1 wherein each of said plurality of porous, reactant gas flow channels comprises a transverse section of said gas distribution layer having a medial portion and a pair of lateral edge portions bordering said medial portion, said medial portion has a permeability that is at least 200% greater than a permeability of said pair of lateral edge portions.

4. The fuel cell of claim 3 wherein said medial portion has a porous media having an average pore size no greater than 0.25 mm and a void fraction of no less than 85%.

5. (Cancelled)

6. The fuel cell of claim 20 wherein said leg portion has a permeability that is at least 200% greater than a permeability of said barrier portions.

7. The fuel cell of claim 20 wherein each of said barrier portions define a groove having a low porosity bead disposed therein.

8. The fuel cell of claim 1 wherein said membrane electrode assembly has a convoluted configuration, and wherein said first face of said first gas distribution layer has a convoluted surface juxtaposed to said first catalytic surface and wherein said first face of said second gas distribution layer has a convoluted surface juxtaposed to said second catalytic surface.

9. The fuel cell of claim 1 wherein each of said plurality of porous, reactant gas flow channels has a gas permeability no greater than 10 kPa/cm at 5 m/s face velocity.

10. The fuel cell of claim 1 wherein each of said plurality of porous, reactant gas flow channels has a contact electrical resistivity of no greater than 50 mΩ-cm².

11. The fuel cell of claim 10 further comprising a porous, conductive interface layer interdisposed between said at least one of said first and second gas distribution layers and at least one of said first and second catalytic layers.

12. The fuel cell of claim 11 wherein said interface layer is selected from a group consisting of an etched foil, a fine mesh screen and GPM.

13. The fuel cell of claim 1 wherein said first and second gas distribution layers are formed of a metallic foam media.

14. The fuel cell of claim 13 wherein said metallic foam media is selected from a group consisting of a high alloy stainless steel, a high alloy nickel, a titanium-based alloy, and FeCrAlY.

15. The fuel cell of claim 1 wherein said first and second gas distribution layers are formed of a graphite-based foam media.

16. The fuel cell of claim 15 wherein said graphite-based foam media is graphitized pyrolytic graphite.

17. The fuel cell of claim 1 further comprising a coolant distribution layer adjacent to said first bipolar plate assembly and in thermal contact therewith.

18. The fuel cell of claim 17 wherein said coolant distribution layer comprises a plurality of porous coolant flow channels extending transversely through said coolant distribution layer in a generally parallel orientation.

19. (Cancelled)

20. The fuel cell of claim 1 wherein each of said wherein each of said plurality of porous, reactant gas flow channels comprises:

a leg portion having a first width and a first porosity extending transversely through said gas distribution layer; and

a barrier portion disposed on each side of said leg portion, said barrier portions having a second width which is less than said first width and a second porosity which is substantially less than said first porosity to channelize the flow of reactant gases through each of said plurality of porous, reactant gas flow channels.

21. The fuel cell of claim 18 wherein each of said wherein each of said plurality of porous coolant flow channels comprises:

a leg portion having a first width and a first porosity extending transversely through said coolant distribution layer; and

a barrier portion disposed on each side of said leg portion, said barrier portions having a second width which is less than said first width and a second porosity which is substantially less than said first porosity to channelize the flow of coolant through each of said plurality of porous coolant flow channels.

22. A fuel cell comprising:

a membrane electrode assembly having a membrane, a first catalytic layer on a first face of said membrane and a second catalytic layer on a second face of said membrane;

a first bipolar plate assembly adjacent said first catalytic layer and in electrical contact therewith, said first bipolar plate assembly including:

a first gas distribution layer having a first plurality of porous, reactant gas flow channels extending transversely through said first gas distribution layer in a generally parallel orientation, a first face of said first gas distribution layer confronting said first catalytic layer such that said first plurality of porous, reactant gas flow channels are in fluid communication with said first catalytic layer, each of said first plurality of porous gas flow channels including a leg portion having a first porosity extending transversely through said gas distribution layer and a barrier portion disposed on each side of said leg portion, said barrier portion having a second porosity which is substantially less than said first porosity to channelize the flow of reactant gases through each of said plurality of porous reactant gas flow channels; and

a first non-porous, conductive separator plate secured to a second face of said first gas distribution layer;

a second bipolar plate assembly adjacent said second catalytic layer and in electrical contact therewith, said second bipolar plate assembly including:

a second gas distribution layer having a second plurality of porous, reactant gas flow channels extending transversely through said second gas distribution layer in a

generally parallel orientation, a first face of said second gas distribution layer confronting said second catalytic layer such that said second plurality of porous, reactant gas flow channels are in fluid communication with said second catalytic layer; and

a second non-porous, conductive separator plate secured to a second face of said second gas distribution layer.

23. The fuel cell of claim 22 wherein said leg portion has a first width and said barrier portion has a second width, said second width being less than said first width.

24. The fuel cell of claim 22 wherein each of said second plurality of porous gas flow channels comprise a leg portion having a third porosity extending transversely through said second gas distribution layer and a barrier portion disposed on each side of said leg portion, said barrier portion having a fourth porosity which is substantially less than said third porosity to channelize the flow of reactant gases through each of said second plurality of porous reactant gas flow channels.

25. The fuel cell of claim 24 wherein said leg portion has a third width and said barrier portion has a fourth width, said fourth width being less than said third width.

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APPENDIX B

Evidence Pursuant to §§ 1.130, 1.131, or 1.132 or Entered by or Relied Upon by the Examiner being Submitted in the Appeal of Application Serial No. 10/080,754

NONE

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APPENDIX C

Proceedings Related to the Appeal of Application Serial No. 10/080,754

NONE